

REMARKS

The Specification:

The abstract and disclosure have been objected to because of informalities. In accordance with the Examiner's suggestion, the abstract and disclosure have been amended. The specification has been objected to as failing to provide antecedent basis for the subject matter of claims 28 and 29. The paragraph [0034] at page 13, line 11 has been amended to clarify the subject matter and to provide antecedent basis for claim 29.

The Claims:

Claims 23-26 and 29-40 are pending. Claims 1-22, which were drawn to non-elected subject matter, have been canceled in the present amendment without prejudice of or disclaimer to the subject matter of the claims. Applicant reserves the right to pursue these claims in a continuation and/or divisional application. Claims 27 and 28 have been canceled as unnecessary. Claims 23-26 and 29 have been amended. Claims 30-44 have been added to clearly recite and distinctly claim Applicant's invention.

Claim Objections

Claim 29 has been objected to because of formalities. Claim 29 has been amended to incorporate the Examiner's suggestion and include a recitation "a photo-**imageable** layer." Also, claim 23, the base claim of claim 29, has been amended to provide proper antecedent basis for the recitation "**the reflective surface layer.**" Applicant would like to thank the Examiner for the suggestion and respectfully request that the objection to claim 29 be withdrawn.

Claim Rejections – 35 USC §103(a)

Claims 23, 26-27 and 29 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Takahara et al.(JP 05265365A) in view of Koyama et al. (U.S. Patent No. 6,291,797).

In rejecting claims 23, 26-27 and 29, the Examiner asserts that "Takahara et al. discloses...an embossing means for creating the grating.... Takahara et al. lacks a laser...for writing grating lines onto the tape by vaporizing portions of the surface layer.... Koyama et al. teaches that a laser...may be utilized to selectively write grating lines onto surface layers deposited on a substrate...as well as ablation or evaporation of underlying adhesion layers.... Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the system of Takahara et al. further utilize a laser...for writing grating lines onto the tape...instead of using an embossing means for creating the grating, as taught by Koyama et al...." Applicant respectfully disagrees.

As the Examiner admitted, Takahara et al. discloses a system for generating diffraction grating tape by embossing/pressing grating lines on a resin layer and depositing a reflective surface on the resin layer. Koyama et al. teaches a system for generating a diffraction grating. In the system of Koyama et al., a laser beam is irradiated onto a diffraction grating to generate a diffraction pattern. Then, a reflective surface layer disposed on a substrate layer is exposed to the diffraction pattern so that the reflective surface is selectively ablated to form grating lines. In contrast, the present invention discloses a system comprising a laser for writing discrete grating lines on a reflective surface layer, **wherein the laser spot from the laser is scanned along the grating lines to evaporate portions of the reflective surface layer and thereby generate a plurality of parallel grating lines.** (FIG. 6 and Paragraph [0035]) As there is no finding that suggests or motivates one of ordinary skill to modify the references or to combine the reference teachings, and even if the reference teachings were to be combined, the combined system would be different from that of the present invention, Applicant respectfully submits that a *prima facie* case of obviousness has not been established.

To further distinguish claim 23 from the systems of cited references, claim 23 has been amended to recite:

23. A system for forming a reflective grating from a tape having a substrate, an adhesion layer, and a reflective surface layer affixed to the substrate by the adhesion layer, the system comprising:
...a laser for sequentially writing discrete grating lines with a laser spot generated by said laser onto the tape, said laser spot vaporizing portions of the reflective surface layer to expose the adhesion layer;

a scan head for synchronizing a path of said laser spot with a motion of the tape so that the discrete grating lines are substantially orthogonal to the axis of motion of the tape....
(Emphasis added.)

Support for the recitation added to claim 23 is found in FIG. 6 and the paragraph [0037] on page 13, line 24 – page 14, line 5. Accordingly Applicant respectfully submits that claim 23 is allowable over the cited references.

Claims 26 and 29 depend from claim 23, rendering them also patentable for at least the same reasons set forth above. Accordingly, Applicant respectfully requests that the rejection to claims 23, 26 and 29 be withdrawn and that an indication of allowance be issued.

Claim 24 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Takahara et al. in view of Koyama et al. as applied to claim 23, and further in view of Liu et al. (U.S. Patent No. 6,580,054)

Claim 24 has been amended to recite:

24. A system for forming a reflective grating as recited in claim 23 further comprising a read head...**includes a laser source that emits a laser beam toward said discrete grating lines to generate a diffraction pattern and oscillates along the axis of motion of the tape and estimates spatial frequencies of the discrete grating lines by detecting and analyzing said diffraction pattern.** (Emphasis added.)

Support for the recitation added to claim 24 is found in the paragraphs [0036]-[0037] on page 14. None of the cited references, taken individually or in combination, teach or suggest “**a read head...includes a laser source that emits a laser beam toward said discrete grating lines to generate a diffraction pattern and oscillates along the axis of motion of the tape and estimates spatial frequencies of the discrete grating lines by detecting and analyzing said diffraction pattern**” as recited in amended claim 24. Accordingly, Applicant respectfully requests that the rejection to claim 24 be withdrawn and that an indication of allowance be issued.

Claim 25 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Takahara et al. in view of Koyama et al. as applied to claim 23, and further in view of Miekka et al. (U.S. Patent No. 5,629,068)

Claim 25 has been amended to recite:

25. A system for forming a reflective grating as recited in claim 23 further comprising a contact adhesive feed roll for applying a **strip of** contact adhesive to the substrate. (Emphasis added.)

Support for the recitation added to claim 25 is found in FIG. 6. None of the cited references, taken individually or in combination, teach or suggest "**a contact adhesive feed roll for applying a strip of contact adhesive to the substrate**" as recited in amended claim 25. Accordingly, Applicant respectfully requests that the rejection to claim 25 be withdrawn and that an indication of allowance be issued.

CONCLUSION


Based on the reasons as set forth above, Applicant respectfully requests allowance of claims 23-26 and 29-44.

In the event that there are any questions concerning this paper, or the application in general, the Examiner is respectfully urged to telephone Applicant's undersigned representative so that prosecution of the application may be expedited.

Respectfully submitted,

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Date: October 27, 2005

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